U.S. Department of Energy
Solar America Initiative
Technical Exchange Meeting Proceedings
April 18 – 19, 2006
Questions and Answers

Q: May we have all the TEM presentation materials in electronic format?

A: Yes. They have been posted. Summary presentations of all breakout session discussions, an attendee list with contact information, DOE's Building America Program contact information, laboratory facilities available for no-fee use, national laboratory point of contact information, DOE IP provisions, and this Q&A are now posted as well.

SAI Program Questions

Q: Many in the PV market have concern that initiatives like SAI may paralyze present market as consumers will wait until PV is "cost competitive" and not permit market to grow. What can SAI do to avoid or minimize this? *Mark Burger, Illinois Solar Energy Association*

A: SAI is designed to work with industry to accelerate cost competitiveness of solar energy as rapidly as possible. SAI is attempting to catalyze the more rapid development of solar energy systems, not disrupt existing commerce. DOE would be interested in any or all suggestions to ensure that the SAI program would not disturb existing markets.

Q: An R&D effort on modules may be negatively impacted when attempting to provide the total PV solution. Has this been considered? *Russell Black, Ziyax, Inc.*

A: The strategy planned for the TPPs gives applying teams the opportunity to set priorities with their application using a systems-driven approach and their own expertise, instead of having DOE dictate those priorities. If, through this process, a team identifies system designs and business plans that do not require an emphasis on module R&D, they will have an opportunity to make the case for their approach.

Q: Is the goal to reach a certain GW level of "installed" capacity or "manufacturing" capacity? *Anonymous*

A: The primary purpose of the SAI is to rapidly increase the PV share of U.S. electricity generating capacity by catalyzing market penetration through cost reductions. To that end, the DOE seeks TPP applications that include robust plans for accelerated scale-up of manufacturing and distribution capacity. The DOE has not set specific SAI program targets for domestic installed PV capacity or manufacturing capacity, but the program estimates that total installed PV capacity may reach 10-15 GW in domestic markets by 2015, if the SAI catalyzes cost reduction to parity with the grid by 2015.

Q: The major limiting factor for PV growth, now, in the next 5 years is (will be) lack of silicon. How is DOE addressing this main problem? *Anonymous*

A: The SAI emphasizes optimization of the entire PV value chain, including feedstock production processes as well as materials utilization and yield in cell/module manufacturing. Applicants are invited to submit proposals that include innovations addressing system cost sensitivities to polysilicon feedstock costs.

Q: What does an ideal prime TPP recipient look like? Please provide a list of characteristics. *Anonymous*

A: The forthcoming Funding Opportunity Announcement for TPPs will specify a set of technical requirements and evaluation criteria for TPP applicants. Beyond the characteristics that the DOE specifies in this FOA, it will have no pre-determined vision for an "ideal" prime TPP recipient. Creative teaming and business plans are welcome.

Q: The drive for vertical integration in teams seems artificial. An example: Why do you need inverters on a team? Inverters work across all panels! *Anonymous*

A: The strategy for vertically integrated teams is to develop solar energy systems that deliver electricity to customers that compete with grid electricity. To meet the aggressive cost targets of the SAI, performance improvements and cost reductions must be achieved in all components, systems engineering, sales/distribution, installation, O&M, and other costs. There may be a variety of teaming arrangements that will enable innovations in each of these areas, across the interfaces between components and across elements of the supply chain. The TPP FOA will provide flexible opportunities for teams to propose make/buy decisions, R&D tasks, and teaming partners where they best support accomplishment of SAI goals.

Q: What is the logic behind the emphasis on building-integrated PV versus standard rooftop PV? *Anonymous*

A: It is not the intent of DOE to "emphasize" BIPV system configurations over "standard rooftop" system configurations under the SAI. The DOE is interested in funding development of systems and business plans with the greatest potential to reduce consumer costs and penetrate markets at large scales. BIPV designs are one potential solution to consumer system requirements, but are not necessarily preferred.

Q: Will you publish a list of builders who have used or are considering using BIPV? *Jason Lu; Enfocus*

A: DOE will provide a list of builders that are participating in DOE's Building America Partnerships, some of whom have expressed an interest in BIPV. This list will be made available through the DOE Solar Program website. If it is not already posted along with the remainder of the post-TEM documents, it will be posted as soon as possible.

Q: Define the difference between high risk component research (that can be part of the proposal) and fundamental research (that will not be funded). *Anonymous*

A: Research tasks that can be completed and evolved into new commercial products or product modifications by 2015 will be eligible for funding in the TPP FOA. With this flexibility, TPP teams are welcome to propose basic research activities in Phase 1 that contribute to their 9-year R&D roadmap goals without necessarily leading to new products by the end of Phase 1. TPP applicants are also encouraged to propose concurrent R&D pathways for high-return sub-component improvement opportunities, with varying timelines and/or degrees of risk for each pathway.

Q: How will the funding be distributed between applied research, technology R&D, prototyping commercial product, etc.? *Anonymous*

A: TPP applicants proposing systems solutions will decide for themselves the appropriate distribution of effort. It will be up to the TPP to determine the "best" mix of R&D, manufacturing improvements, prototyping, etc. DOE does not expect there to be a "best" mix; the mix will vary depending on the status of the system being proposed. The FOA may permit less than fully-integrated solutions and these will be compared on best-value and other criteria specified in the FOA. Additional R&D opportunities will continue to be funded through the program's applied research area.

Q: Why is there no money for CPV? *Anonymous*

A: There will no longer be funding for any specific technology as the Solar America Initiative will have a systems perspective. CPV technology, along with all other PV technologies, can be proposed in the TPP application.

Q: CPV, systems very large installations—will you cover these in your standards for installations? What is DOE's opinion of feed-in tariffs at the federal level? *Steve Horne, Solfucus*

A: SAI includes utility-scale systems, such as CPV, which could be very large. The FOA will identify applicable codes and standards for both large and small systems. The goal of SAI is to achieve market competitiveness by 2015 without requiring subsidies or incentives at that time.

Q: Could you please explain why there is $0 in the FY 2007 Request for Solar Heating and Lighting? Are all R&D issues already resolved? Solar Heating could be the most effective short-term pathway for energy savings. *Joseph Rabovitser, GTI*

A: The Solar America Initiative is aimed at producing cost-effective solar *electric* systems by 2015. Solar Heating and Lighting may indeed be a short-term pathway for energy savings but it has been determined that near-term product improvement R&D ought to be continued by the private sector without further government support. However, the Federal government continues to support the technology. The Energy Policy Act of 2005 established a tax credit for solar water heaters; a high priority of the solar industry.

Q: Can you provide the history of why this entire effort appears to be focused on PV, especially from a funding perspective, when CSP is currently less expensive, has the option to load follow, and is well proven in the U.S.? *Anonymous*

A: CSP is part of the Solar America Initiative. It is not included in this solicitation because the CSP budget request for FY2007 was for R&D on troughs and dishes. The CSP budget has risen from $5.9M in FY2005 to $7.4M in FY2006. The FY2007 request is $8.9M. It is anticipated that at some point in the future, the CSP budget will enable it to be included in a solicitation such as the one now being planned for PV.

Q: How do you see responding teams receiving basic science and engineering support, if any? Is there a longer view component that helps generate second generation systems? *Angus Rockett, University of Illinois*

A: Experts and facilities from the National Center for Photovoltaics National Labs (NREL and Sandia) will be made available to TPP teams on a no-fee basis, and can provide basic science and engineering support through those avenues. For institutions that are not a part of a TPP team, these experts and facilities will remain available for engineering support and measurements & characterization as they do today. The DOE Solar Energy Technologies Program will also continue to fund next-generation PV R&D through its Applied Research activities, and will be considering the issuance of new solicitations for that work. Research tasks that have the sole purpose of advancing science will not be funded as part of the TPPs, but will potentially be funded through separate solicitations to be released by both the EERE Solar Energy Technologies Program and the Office of Science Basic Energy Sciences Program.

Q: Given that much of the funding stream from DOE to universities will be lost due to SAI, how will DOE help preserve a robust applied research stream as well as the science and technology workforce for Solar?

A: As indicated at the TEM, the entire DOE Solar budget is not being diverted to SAI. Continued direct funding of university applied and other R&D is still planned. In addition, as part of SAI, universities have the opportunity to participate as part of a team.

Q: Does development of intellectual capital [students trained in PV fundamentals] have a role in SAI? *Sites, Colorado State University*

A: While this is not a direct goal or objective of SAI, this could be an indirect result depending on whether universities become active TPP partners. Additionally, other applied research programs should continue as part of the Solar Energy Technologies Program which may continue to support universities. The Technology Acceptance activities funded under SAI will also include training and certification activities intended to bolster the human capital base for domestic PV manufacturing and installation.

Q: How is this program different from the NIST –ATP? To what extent is the ATP (NIST) program a model for you? *Anonymous*

A: Both the Solar America Initiative (SAI) and the NIST Advanced Technology Program (ATP) aim to transition laboratory research innovations into new commercial products. They differ to the extent that the ATP covers the full range of U.S. research fields and markets, while the SAI focuses on solar electricity systems. The ATP also generally makes smaller awards than are envisioned for SAI TPPs, and makes those awards to single companies rather than collaborative industry partnerships.

Q: What are DOE's plans for an "SAI" program for 2010 – 2015? *Elliot Berman*

A: The three phases and nine-year strategy for the TPP program are clearly articulated in the presentation materials. A Solar America Initiative Posture Plan will be developed and published and released prior to the release of the FOA to provide greater detail.

Q: Suppose Congress doesn't appropriate the full amount requested? What is Plan B? *S. Danyluk—Georgia Tech*

A: DOE's intent will be to fully implement the goals of the Solar America Initiative beginning in FY 2007—its specific procurement strategy will vary based on the amount of funding appropriated. DOE is developing contingency plans for a variety of scenarios, and will continue to solicit external feedback and suggestions as it determines the most appropriate course of action after Congress completes an FY2007 appropriation.

Q: How will you meet the $0 earmark goal rather than seeing it double or triple with the expected budget increases? *Anonymous*

A: Congress will determine whether there are any Congressionally-directed projects for solar energy in FY 2007.

Modeling and Analysis Questions

Q: Does total system cost = total installed cost? *Anonymous*

A: No. Total system cost equals all costs to deliver, operate, and maintain the system over its life including operation and maintenance, sales, etc. Please refer to the Technology Improvement Opportunities (TIOs) presentation and the DOE Solar Energy Technologies Multi-Year Program Plan for greater detail.

Q: Modules—Absorber: Efficiency Cost; High Import. Question: What is the "Absorber?" *Anonymous*

A: Please refer to the Technology Improvement Opportunities (TIOs) presentation and the DOE Solar Energy Technologies Multi-Year Program Plan for all definitions of the TIOs.

Q: What is the DOE's definition of "integrated systems?" *Anonymous*

A: In general, it as a solar energy system (including all components) that can be delivered to a customer that will provide reliable and cost-effective electricity. All costs (hardware, installation, O&M, marketing, etc.) must be considered. Please refer to presentations and the MYPP for more details.

Q: Will NREL's SAM training be also available in web-based format? *Anonymous*

A: The SAM model and training will be provided by NREL, probably in the form of a one-day training workshop. The model and the training materials will be made available over internet. However, it will not be made available in a "web-based format."

Q: SAM: Conventional market rates are shown static over time. Is this going to be the case? Oil, natural gas prices are increasing. Does SAM understand concentration photovoltaics? *Steve Horne, SolFocus*

A: The goal of the SAI is for PV to be cost-competitive with other electricity sources by CY2015. As explained in the MYPP, the cost-competitive ¢/kWh targets are tied to Energy Information Administration forecasts. EIA expects electricity rates to remain fairly constant (in real dollars) through 2025.

Q: Have you analyzed the cost of PV systems (versus modules/inverter/…) by: a. Fixed and Variable Costs? b. Material/Labor/Burden? I suggest doing this in order to gain greater insight into identifying opportunities! *Anonymous*

A: The program has done some cost-sensitivity analysis, as presented in the MYPP. It is expected teams will conduct their own analysis, both in the proposal stage and throughout project execution. SAM contains some capabilities that support trade-off analysis.

Q: How does SAM/DOE provide objective evaluation of high concentrating PV in high direct beam low cloudiness, vs. low concentrating or a flat plate with high diffuse low beam sites? NE states have high diffuse and high electricity costs. CPV may be competitive in desert not under diffuse. *Anonymous*

A: The capability to handle CPV is to be added to SAM by the time of the FOA release. The MYPP targets are based on Phoenix meteorological data. Business plans should address how the market capacity necessary to support cost reduction will be achieved. Such analysis should include the impact of insolation levels on regional market potential.

Q: How will DOE/SAM allow for uncontrolled external factors? Are you adjusting for cost of silicon and the Fed's prime rate of interest? *Anonymous*

A: Baseline financial assumptions, as provided in the MYPP, will be included in the FOA and are to be used in the applicant's analysis. The cost of silicon is an integral part of the cost of energy from (silicon) solar systems.

Q: What was included in the O&M costs for the 2005 LCOE estimate? It seems extremely high. *Anonymous*

A: For the analysis presented at the TEM and summarized in the MYPP, O&M costs included two parts: periodic inverter replacement, based on the life of the inverter and a small percentage (0.15 – 0.5 %) of installed system cost per year, as described in the MYPP. The cost of inverter replacement, parts and labor, was assumed to be the same as the purchase price of the inverter at system installation. Applicants are expected to provide their own, benchmarked, O&M data.

Q: PV market barriers—As a deliverable, are we discussing one or two large projects with cost breakdown to show LCOE? *Anonymous*

A: Applicants are to provide system LCOE data based on actual data tied to current market volume of the various team members. Projected costs are to be based on market volumes the applicant intends to achieve in out years, as is to be explained and justified in the business plan section of the application.

Q: How is DOE using the metric or EROEI (Energy Return On Energy Investment)? This underlies the LCOE identifying ways to reduce EROEI will help distinguish potential to reduce LCOE. *David Hagen, AcrossTech*

A: The cost of energy required to manufacture, install, and maintain a system is part of LCOE. DOE does not require tracking EROEI as a separate metric.

Q: LCOE parity is a valid goal; however, if we consider real environmental costs, we are competitive now. Should the economic model (e.g. LCOE) include environmental impacts? How would this change the design of this initiative and government policy in general? *Bob Wills, Intergrid*

A: The goal of the SAI is for PV to be cost-competitive with other electricity sources by CY2015, and, as explained in the MYPP, the cost-competitive ¢/kWh targets are tied to Energy Information Administration forecasts of market prices. The EIA reference forecast is based on current policies in place, thus it excludes environmental externalities.

Q: Will the removal and utilization of the 4x heat energy produced by PV as compared to the electrical energy, be included in the SAI cost-competitive solar energy systems approach and factored into the levelized cost of energy? *F. Scott Cicora, Conserval Systems*

A: SAM does not currently have the capability to directly calculate the value of heat energy. SAM does have the ability to convert annual expenditures associated with O&M into LCOE. Applicants may provide their own calculations of the value of heat energy on an annual basis and provide that as a negative O&M cost to SAM. Such calculations should be tied to the market cost of competing energy sources (see EIA's Annual Energy Outlook) and should be appropriate for the benchmark climate. To demonstrate the value of heat energy, applicants may want to provide calculations for a colder climate, using the appropriate Typical Meteorological Year data, in addition to the required calculations for Phoenix.

Q: For the current cost model ($0.35-$0.50/kWh), does this include cost of capital? What solar insolation do you assume on the module? (kWh/year) *Angus Rocket, University of Illinois*

A: Cost of capital is included. The value of solar insolation is that found in the Typical Meteorological Year-2 data for Phoenix.

Q: What are considered examples of "other costs"? *Anonymous*

A: Other costs in the model include soft costs such as marketing, profit, engineering, and anything else not covered in other cost categories that will be required to sell solar energy systems for a successful business. The amount of profit included should be sufficient to operate a sustainable business at the current or projected future production volume. Higher profits enabled by market demand do not need to be included.

Q: Market breakthrough means competition with peak power cost, not daily average. How do you see market access vis a vis peak shaving applications? *Angus Rockett, University of Illinois*

A: Peak power markets will likely play an important role in expanding PV markets, however, achieving broad cost-competitiveness throughout much of the U.S. (on the scale envisioned under SAI) will require developing systems that are able to compete against flat rates in the residential and commercial markets. The lower range for utility markets reflects the value of non-dispatchable power in the marketplace. Value-added strategies incorporating storage or other means to improve value may be presented in addition to the baseline analysis.

FOA Questions (Funding, Phasing, Teaming, IP)

Q: The teaming mechanism is not clear. Does DOE have specific requirements for teaming? Will DOE coordinate this activity?

A: The draft proposal requirements and evaluation criteria for a FOA indicate that the Applicant will be evaluated in part based on his proposed team and its qualifications to perform the scope in the Application. DOE will not be involved in any coordination of teaming efforts; rather, DOE will only evaluate what is proposed. The only guidance/requirements will be those included in the FOA requirements and evaluation criteria.

Q: Does DOE have minimum requirements for the legal framework between team partners? Will it legally review these? *Steve Horne, Solfucus*

A: The contractual arrangements between the Recipient and its partners are for them to establish, and DOE will not investigate this. There will be a requirement for cost share commitment letters from cost sharing partners, signed by individuals who have authority to sign for those organizations.

Q: How many TPP recipient awards are expected for 2007? i.e. How many prime grant awards are expected? *Anonymous*

A: The number of awards made under the TPP Phase 1 FOA will be a function of three primary factors: (1) availability and amount of appropriated funding in the FY2007 budget; (2) quantity and characteristics of applications submitted for awards; and (3) the proposed funding requirements for selected applications. When DOE completes drafting this FOA and issues it for applications, it will provide some preliminary guidance about the number of awards it expects to make. Until DOE determines the final structure and requirements of the FOA, it is difficult to make estimates about the number of projected awards.

Q: Does a “pathway partnership” have a leader, or prime, recipient? *Swanson, SunPower*

A: There will need to be a primary technical point of contact and business point of contact for the Applicant organization.

Q: Understanding that a TPP proposed prime recipient can only be awarded one award, can a prime submit multiple proposals? *Anonymous*

A: There is typically no restriction on the number of applications that an organization may submit. This will be clarified in the FOA, but it is safe at this point to assume that multiple applications from an Applicant organization will be permitted.

Q: What is meant by system integration capacity, as a requirement for TPP recipients? *Anonymous*

A: This term refers to an organization's ability to design and assemble full PV systems using established personnel, protocols, engineering tools, and equipment. In this vein, the term "systems integration" is differentiated from an organization's ability to design and manufacture the separate components that must be integrated into an operational PV system.

Q: In the case of a fully integrated company, can an application be filed by that company on its own, based on its own capabilities, and possibly a limited number of "buy" decisions indicated? *Chris O'Brien, Sharp Solar*

A: DOE will not provide advance comment on whether an application is responsive to the requirements of an FOA. All applicants will be responsible for ensuring that their applications are responsive to the FOA and comply with the eligibility requirements.

Q: For "make/buy" assumptions, will DOE provide baseline assumptions? *Chris O'Brien, Sharp Solar*

A: The applicant needs to provide their own baseline assumptions and supporting data.

Q: Can the path to commercialization take the following path: a large company with systems integration distribution and marketing and BOS capabilities, partners with 2 – 3 small PV technology (module) manufacturers with a down-select in the 1st three years to the most promising module manufacturer, which would then be acquired by the large corporate entity? *Anonymous*

A: DOE will not comment on proposed paths in response to this initiative.

Q: May a U.S. Recipient have a non-U.S. sub-recipient proposed? May non-U.S.-owned companies with international operations collaborate with U.S.-owned companies in an application? How much U.S. "presence" (percentage-wise perhaps?) is required in an Application? Are there restrictions on the nationalities of key personnel proposed to perform?

A: The current Energy Policy Act encourages use of American-owned firms. Inclusion of non-U.S. firms on teams can be considered. FOA requirements relative to these questions have not been finalized. Input via comments at the IIPS website for the NOPI is encouraged.

Q: We are allowed to do R&D for post-2009 commercialization. I believe that even then, we need to demonstrate certain c/kWh at the end of Phase I. How does DOE audit that? *S. Guha, Uni-Solar*

A: Applicants are expected to document a path to achieving the 2015 goals and to identify metrics by which progress can be measured. Teams must meet their metrics, but the metrics at 2009 might not include ¢/kWh goals for 2009. Rather they might indicate the necessary progress in other metrics (cost, performance, reliability) necessary to achieve 2015 goals.

Q: What level of confidentiality is maintained by the reviewers of application documents? Are these documents, especially details of a business plan, part of the public domain?

A: All application documents are seen only by the Merit Review Committee (MRC) and Selection Official (SO) assigned to evaluate, discuss, score, and select from among these. MRC members sign conflict of interest and confidentiality certifications, and DOE secures the information provided. It is not public domain.

Q: Intellectual property will be a major issue with SAI, and issues may be difficult to work out between partners. Is there a boilerplate for award provisions in this area? Will Awardees own the IP, or DOE? And how will DOE facilitate resolution of IP issues?

A: DOE will not facilitate resolution between partners regarding IP issues. DOE will address IP issues with the Recipient in the award. The Recipient is responsible for ensuring that any IP agreements between partners are completed such that the project may proceed without delay. DOE will provide further guidance regarding IP issues upon the issuance of the FOA.

Q: Do you expect that all the IP agreements are in place before the award is made? *S. Danyluk, Georgia Tech*

A: No. Upon issuance of the award, DOE will have resolved outstanding IP issues with the Recipient. The Recipient is responsible for ensuring that any IP agreements between partners are completed such that the project may proceed without delay.

Q: How can confidentiality for trade secrets be assured? What are program reporting requirements? That is, what information must be publicly disclosed? *Randy Johnson, Sharp Corporation*

A: While there are reporting requirements, trade secrets can be protected. All applicants and awardees should properly identify any information which it deems proprietary, confidential or at trade secret. DOE will treat such information with caution. The public final report often can be completed without the inclusion of proprietary information.

Q: Do the IP Requirements apply differently to a large company? Prime and their small company sub? Or is the small company sub subject to the large company requirements? *Anonymous*

A: IP requirements will vary depending on the entity and the applicable statutory authority. DOE will provide further IP guidance upon the issuance of the FOA.

Q: The 50% cost share requirement even for large business, is considered prohibitive. Can this be reduced to no more than 30%?

A: A minimum 20% cost share requirement, of total project costs, is a statutory requirement for research and development awards. DOE may choose to require a higher percentage of non-federal cost share in a competitive action when they can defend that the ability of the competitive market to provide a higher percentage of cost sharing, as well as the perceived benefits of the federal funding permit. More specific comment on this issue is encouraged at the IIPS website so that DOE may make a final determination on what level of cost sharing to require in the FOA.

Q: What is eligible cost share? Are there limits to how much capital equipment in a budget may qualify as cost share?

A: 10 CFR 600, and specifically sections 600.30, 600.123 and 600.224, provide guidance on cost sharing requirements. Essentially, any of the allowable estimated costs in an estimated budget for the scope in an award, which are derived from a non-federal source, are eligible cost share. We suggest you review these sections. No, there is no limit to how much capital equipment in a budget may qualify as cost share, as long as the equipment is in the budget, necessary for the scope and is from a non-federal source.

Q: What constitutes cost-share? Cash or In-kind or Payback downstream or other or all of the above? What types of in-kind are usable? *Anonymous*

A: See above Q&A; suggest review of the regulatory coverage at these sections, and post questions at the IIPS website Q&A if you have more specific questions relative to this once you have read it.

Q: Can the funds for a university be taken as a cost share by the prime TPP recipient? Do the funds for a university require a cost share? *Robert Birkmire, University of Delaware*

A: The entire estimated budget (total project costs) need to be shared at the required percentage indicated in the FOA. DOE will not view this requirement by Recipient and sub-recipient. Therefore, the partners work it out. This would include any university efforts included in the total.

Q: What would be a typical profile to the awards? Would awards be primarily in-kind contributions from National Labs or cash awards? *Randy Johnson, Sharp Corporation*

A: The above Q&A is considered to answer this question.

Q: May the FFRDCs be partners of Applicant Teams?

A: Yes. DOE will be posting instructions shortly on how potential Applicants may contact FFRDCs, through established points of contact.

Q: How is DOE handling conflict of interest relative to the national laboratories?

A: DOE and the FFRDCs involved with this SAI action have established internal Conflict of Interest protocols. Potential Applicants are assured that FFRDC support of the FOA competitions, FFRDC provision of no-fee sources, and FFRDC participation on applicant teams will be separate, segregated personnel in the FFRDCs.

Q: How will National Labs be incorporated into submissions? Is it as a sub? Is it a separate contract agreement that must be drawn up between one team and the National Labs for test facilities access? *Anonymous*

A: If the Application organization is including a FFRDC partner, yes it is a sub-recipient, with the budget dollars shown on the Contractual line of the SF424A budget. The FFRDC will then develop a Work For Others agreement with the Applicant, and we will award the entire project to the Applicant, but fund the FFRDC portion directly to the FFRDC. The Applicant will have overall responsibility for management of the project proposed and awarded.

Q: What level of National Lab participation can we expect? How is it measured? Is it negotiable? *Steve Horne, Solfucus*

A: We believe we have provided all the information we can on the lab facilities and services available, and POC information within the labs to contact them to access it and/or inquire about it. As for what level of participation to expect, that is for the Applicant to indicate to us in their submission, and it will be measured as part of the entire application in accordance with the FOA evaluation criteria. Any negotiations of FFRDC involvement on a team, or as a no-fee service, are between that FFRDC and the Applicant prior to submission of the Application.

Q: If the Lab is formally part of a team, does the percentage of cost share for their role have to be provided by industrial partner? *Anonymous*

A: YES. National laboratories cannot provide cost sharing.

Q: What no-fee, Government lab and other resources (specifically analytical services) will SAI make available to Applicants? And how are these accessed?

A: Most of these resources were identified at the TEM. A list of these resources and instructions on how to contact POCs to investigate and access them will be posted.

Q: Can non-awardees (TPP) access DOE Lab facilities at no cost or reasonably affordable rates (for very small business)? *Anonymous*

A: This is not a question relevant to the FOA process, but you are encouraged to use the POC information provided to contact the laboratory if you are interested in using their facilities. They will direct you to the appropriate person to assist you.

Technical Acceptance Questions

Q: What is the expected annual budget (target?) for the "market acceptance" activities? *Anonymous*

A: We anticipate that the "Technology Acceptance" activities under the Solar America Initiative will fall in the $10-$15 million range, some of which will be funded through a competitive solicitation ($5-10 million) and some of which will be funded within our base program ($5-10 million). See the Request for Information (RFI), which has been issued, DE-PS36-06GO96022, at https://e-center.doe.gov/.

Q: Will the technical acceptance program RFD have opportunities for University and Community Colleges to propose projects? *Al Compaan*

A: Yes.

Q: There are many detractors of the established government based ratings programs (energy star, energuide) in terms of accuracy, etc. Has DOE studied the shortfalls of these standards to correct them with respect to a 'PV' standard? *Anonymous*

A. We anticipate analyzing the benefits and shortcomings of other Federal ratings programs should we decide to fund the creation of a Federal PV rating system.

Q: What fraction of the energy now consumed by DOE at its facilities around the country is derived from alternative or 'solar' sources? Would public acceptance and understanding of the importance of PV to the nation's future be raised if DOE itself became more 'green'? *Richard Gelinas*

A: Electricity consumption from renewables as a percentage of total energy consumption at DOE buildings is approximately 2 percent. By promoting energy efficiency and the use of renewable energy resources at Federal sites, the Federal Energy Management Program helps agencies save energy, save taxpayer dollars, and demonstrate leadership with responsible, cleaner energy choices.

Comments/Suggestions

This looks to be a few large contracts for big vertically-integrated firms:
- It risks killing small entrepreneurial efforts that are likely to lead to the breakthroughs we need
- It may not adequately address developing the underlying science and technology at the universities and labs.
- It risks locking up IP in proprietary agreements, instead of having it more broadly available as has been done.
- It risks spending research dollars on deployment that is better handled by large state programs.

Instead, DOE should focus on smaller contracts in key R&D barriers to drive core module and inverter costs down. DOE should work to make IP broadly available, and use universities to ensure training of technical manpower
Anonymous

Competitive "unsubsidized" PV will be at a serious disadvantage if fossil nuclear electricity generation remains heavily subsidized. Either subsidize all generation or none. *Mark Wizkerson, SunWize*

Vertical Integrated Companies are usually very large companies. Any new innovations are going to conflict with their existing activities. So, this requirement virtually shut off small companies' access to funding. I suggest some small funding allocated to small business. *Anonymous*

I would like to challenge Tom's assumption that "a highly qualified labor force" be required to install PV. I challenge this and suggest that one of the major design goals for the TPPs is to step out of the "PV box" and develop products and systems with installation procedures that gel with their respective applications (i.e. residential roofing should install like typical residential roofing—not some high cost specialized after-thought) Why not step out of the box? *Abby Nessa, Solar Roofing Systems*

Solar tracking might be more cost effective than storage to generator to match the peak. *Bill Yenges, www.solaicx.com*

Comment on "Will only fund teams with established facilities": Innovation is the key to make a 400 fold growth (competitive price and volume supply are inseparable). History shows revolutionary innovations comes from small companies. DOE should help facilitate innovative startups with bigger entities instead of categorically turn down. *Jason Lu, Enfocus*

Delaying Budget funding from Phase I to II simply slows the commitment by management waiting for DOE to make a commitment will slow the whole thing. *Bill Yerkes; www.solacix.com*

Recommend include time of pay and time of year pricing in SAM model and in DOE LCOE pricing goals, especially for utilities and preferably for commercial niches. *Anonymous*

The electric utility is slow to act (following, not leading) utility organ. Need to get on board to reduce installation cost California – EPRI, New York – Edison Electrical Institute. *Bill Yenges, www.solaicx.com*

Issue to Be Considered:

Statement: How DOE can respond to regional changes in electricity markets. For Example: the residential electricity price in Boston is now over 20 cents. Most likely your models will handle this, but I think promoting this program with 8 – 10 cent residential will set expectations too low for the program. The same holds for commercial and industrial. Low price targets may only encourage long term, high risk research

Potential Resolution: Present DOE targets with caveats for regional differences and changes over time. Metrics might relate targets to natural gas prices since gas is now the margin price fuel for electric power.

Affected Applications: All—energy is always underpriced in the U.S. relative to the rest of the world.

Ed Kern, Irradiance